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About This Guide

1

Introduction

This guide provides step-by-step instructions designed to assist you in administering Station Message Detail Recording (SMDR).

Guide Conventions

As you work through this guide you will notice that certain conventions have been used to present steps and procedures. Some numbers and words appear in square boxes. These represent numbers and buttons on a Norstar telephone dial pad. For example:

1. Press Feature 9 * 2

This means, press the Feature button, then press 9 * 2 on the telephone dial pad.

Words appearing on the Norstar display are represented in a similar display text. For example:

1. Press NEXT

This means press the corresponding display button.

Getting Started

2

About Station Message Detail Recording

Station Message Detail Recording (SMDR) is a unit that is connected to your Norstar Key System Unit to record call activity. Each time a telephone call is made to or from your company, the information about the call is recorded. When the call is completed, information about the call is printed out in a Call Record.

Information can be recorded for both incoming and outgoing calls.

SMDR provides information about:

- date and time of the call, and digits dialed
- the originating station
- whether an incoming call was answered
- call duration and ring duration
- whether a call was transferred or put on hold
- elapsed time between origin of a call and when it was answered
- calls associated with Account Codes and Passwords

The information collected by SMDR can be used to:

- allocate telephone costs to departments or individuals
- charge back telephone costs to billable clients through Account Codes
- determine whether the telephone system is being used efficiently
- guard against abuse of the telephone system

System Overview

The SMDR is a peripheral connected to the Norstar Key Service Unit (KSU). SMDR connects to any data collection device to provide records about telephone call activity as shown in Figure 2.1.

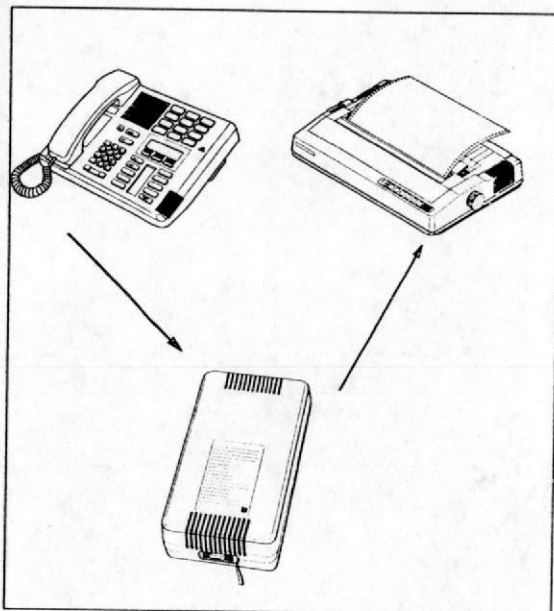


Figure 2.1: SMDR System Overview

Your Role as System Coordinator

As System Coordinator, you perform the initial and ongoing administration tasks. Your tasks include:

- administering SMDR
- determining Account Codes which are used as a reference for tracking telephone calls
- interpreting SMDR reports

Programming SMDR Using M7310/M7324 Telephones

When you use an M7310 or M7324 telephone, prompts and menu selections appear in the first line of the telephone display.

Commands for the three display buttons appear in the second line of the display. Pressing a display button performs the function specified on the option line. Figure 2.2 shows an example of a two line display.

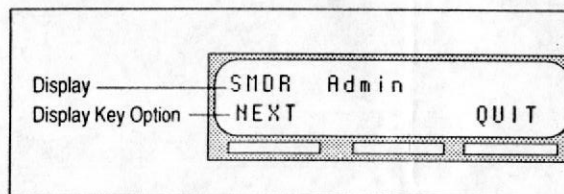


Figure 2.2: M7310/M7324 Telephone Display

Programming SMDR Using M7100/M7208 Telephones

When you use M7100 or M7208 telephones, only prompts and menu selections appear on the display. Figure 2.3 shows an example of the M7208 display.

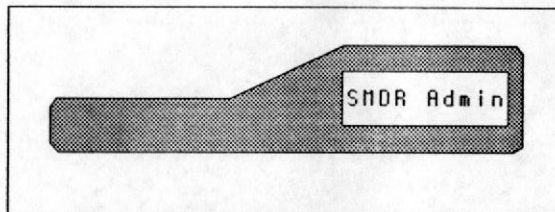


Figure 2.3: M7208 Telephone Display

SMDR commands are selected from the M7208 or M7100 dial pad. For example:

Press for NEXT

Press for SHOW

Press for CHANGE

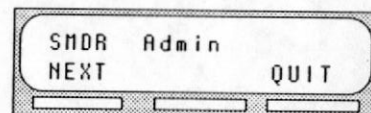
Accessing the SMDR Main Menu

SMDR menus are accessed by entering the Administration Feature Code on your telephone dial pad. As System Coordinator, you should be the **only** person with access to Administration functions.

To access the SMDR Administration Menu:

1. Press

The display shows:



This display is the SMDR Administration Menu.

Note: All changes in SMDR Administration parameters are implemented immediately after they are selected, not after the SMDR Administration session is ended.

Exiting From SMDR Administration

After you have selected your specific parameters and want to exit from SMDR Administration, follow these steps:

1. Press
 - or
2. Press QUIT at the Main Menu.
 - or
3. Press twice.

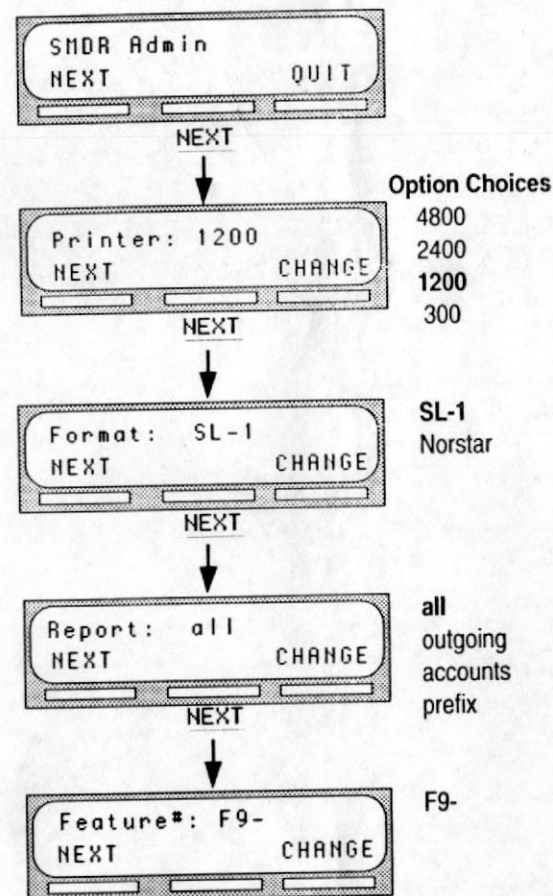
Any one of these commands returns you to the Norstar display.

Administering SMDR

3

Introduction

SMDR uses programming parameters to specify the kinds of calls collected. Each programming parameter has a default setting (shown in bold below) that can be changed at any time. The display screens that are used to assign SMDR programming parameters are shown below:



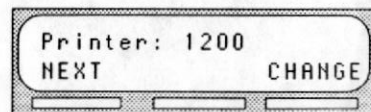
Setting the Printer Speed

You can set the printer speed to 300, 1200, 2400, or 4800 baud, depending on the printer capabilities.

Note: If your telephone system is a Norstar Modular KSU equipped with a six port expansion cartridge, we recommend the printer speed be set to 4800 baud.

To set the printer speed, access the SMDR main menu.

1. Press **NEXT** until the display shows:



2. Press **CHANGE** until the desired printer speed appears on the display.

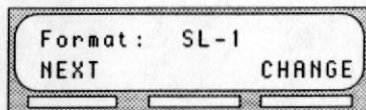
Record Format

SMDR generates records in both Norstar and SL-1 formats. The Norstar format records can be printed in English or in French. The French selection option is only available when French is offered by the KSU.

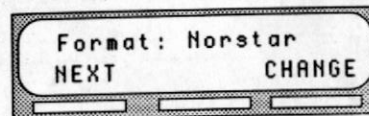
SMDR defaults to the SL-1 format. SL-1 records are alphanumeric and are always printed in English.

To set the record format:

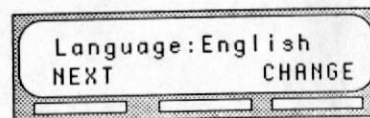
1. Press **NEXT** until the display shows:



2. Press **CHANGE** to select the Format. The display shows:



3. Press **NEXT** to select the language preference. The display shows:



4. Press **CHANGE** to select the language.

Norstar Record Format

The Norstar format generates call records in an easy to read printout. Norstar formatted records always start with a header line indicating the date (MM/DD/YY), time (24 Hr), LINE field and STN field. The records have at least one event line showing an event and time stamp.

Samples of the Norstar formatted record are shown in Figures 3.1 and 3.2.

```

----- 12/05/91 10:06:32  LINE = 0006  STN = 21
00:00:00  OUTGOING CALL
00:26:15  ACCOUNT CODE 8
          DIGITS DIALED 5553647
00:28:33  CALL RELEASED
  
```

Figure 3.1: Norstar Record Format

```

----- 11/13/91 11:39:43 LINE = 0003 STN = 7468
00:00:00 INCOMING CALL RINGING 0:32
00:00:32 HOLD
00:00:43 UNHOLD
00:01:32 CALL RELEASED

```

Figure 3.2: Norstar Record Format

SL-1 Record Format

SL-1 record formats are primarily used when the SMDR output is supplied to commercial call accounting packages or equipment. A sample SL-1 record format is shown in Figure 3.3. The fields for SL-1 records are summarized in Figure 3.4.

```

C 033 00 DN4233 T052000 02/22 02:31 772003
N 034 00 DN4233 T052000 02/22 02:31 00:01:21 16045551212
N 035 00 T010122 DN4298 02/22 08:17 00:02:44

```

Figure 3.3: Example of SL-1 Record Format

Column	Name	Format	Definition
1	RecType	Y	Record type
2	Blank		Blank space
3-5	RecNo	XXX	Record
6	Blank		Seq number
7-8	CustNo	00	Blank space
9	Blank		Customer number
10-16	OrigID	T0XXXXY DNXXXX CF00001	Blank space
17	Blank		Line number
18-24	TerID	T0XX000 DNXXXX	Stn number
25	Blank		Conference
26-35	Blank		Blank space
38-48	TimeStamp	MM/DD HH:MM	Line number
49	Blank		Set number
50-57	Duration	HH:MM:SS	Blank space
58	Blank		Blank space
59-90	Digits	XXX...X	Call duration
50-61	AccCode	XXX...X	Blank space
			Dialed digits
			Account code

Figure 3.4: SL-1 Record Format Definitions

The following record types are supported by SMDR as shown in Figure 3.5:

Letter Code	Record Type
A	Authorization Record
C	Charge Record
E	End Record
I	Initialization Record
M	Conference Charge Record
N	Normal Record
S	Start Record

Figure 3.5: Record Types

Report Type

The Call Report option allows you to specify the type of calls to be collected. This option can be set to:

- all calls
- outgoing calls only
- calls with Account Codes or Passwords
- prefix

The default Call Report setting is **all calls**.

To Set the Report Type Using M7310/M7324 Telephone

To set the Report Type you must access the SMDR Admin menu. (See Section 2: Getting Started for information on accessing SMDR Admin).

1. Press **NEXT** until the display shows:

Report:	all
NEXT	CHANGE

2. Press **CHANGE** to select the Report Type.

If you select the prefix report type, you must also specify the prefix digits.

The purpose of the prefix option is to record long distance calls, area codes or calls to specific numbers.

If the first digits dialed match one or more of the programmable strings, the call is recorded. You can have a maximum of eight prefix strings assigned at one time. The maximum length for each string is eight digits.

To specify the prefix digits:

1. Press **CHANGE**

The display shows:

Report: prefix
NEXT SHOW CHANGE

2. Press **SHOW**

The display shows:

Prefix1 0
CLEAR OK

3. Using the dial pad, enter the prefix digits. (In this example 9293 is used). The display shows:

Prefix1 9293
BKSP CLEAR OK

Either the **BKSP** or **CLEAR** buttons can be used to correct characters that are entered in error. The **BKSP** button erases one character at a time. The **CLEAR** button erases all of the characters you have entered.

When you are programming SMDR from an M7310 or M7324 telephone, the asterisk (*) button is accepted as a wild card character that represents any digit.

Note: The defaults are 0, 1, 90, 91, 411 and 9411. A maximum of eight digits are entered.

4. Press **OK** to continue to the next prefix.

To Set the Report Type Using M7100/M7208 Telephones

The M7100 and the M7208 telephones have a one line display. When you are programming SMDR in Report Type Prefix, the * and # buttons have different functions.

The * button represents the CLEAR command. Pressing the * button will erase all of the digits that have been entered.

The # button represents the NEXT command. Press # to go to the next prefix.

Note: You cannot use the * button as a "wild card" character when adding prefix digits on the M7100/M7208 telephones.

Account Feature Code

Account Codes allow you to cross-reference telephone calls from your company to different SMDR clients or telephone activities.

Before Account Codes can be entered by users, an Account Feature Code must be established. The Feature Code can be any number between 900 and 999.

To set the Account Feature Code, you must access SMDR Administration. (See Section 2: Getting Started, for information on accessing SMDR Administration). After the Feature Code is entered, users can enter the appropriate Account Code to the Call.

To set the Account Feature Code:

1. Press **NEXT** until the display shows:

Feature#: F9-
NEXT CHANGE

2. Press **CHANGE**
3. Enter the last two digits of the Account Feature Code.
4. Press **NEXT** to return to the main menu.

Note: If the display shows: **Code in Use** you must select another code.

Important: Do not forget to provide your co-workers with the SMDR Account Feature Code.

Creating an Account Code List

Account Codes create a reference for tracking telephone calls. For example, someone contacting a billable client, would enter an assigned code each time a call was placed to that client.

Account Codes are from one to 12 digits long. Account Codes cannot contain the ***** or **#** symbols. An example of an Account Code List is shown in Figure 3.6.

Account Code	Description
11127	Barry Rogers
37	Field Support
239	KM Taylor
45	Monique Leblanc
1552	Ernest Smith
53	Modern Ways Ltd.
73	Tomorrow's Tools
100	Long Distance

Figure 3.6: Account Code List

Using Account Codes

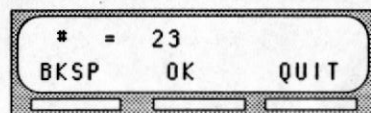
Account Codes can be associated with any incoming or outgoing calls. Account Codes can be entered from any Norstar set by first entering the Account Feature Code (F9-).

To use Account Codes:

1. Select an outside line.
2. Press **Feature** and enter the three digit SMDR Account Feature Code. The display shows:

Enter account:
QUIT

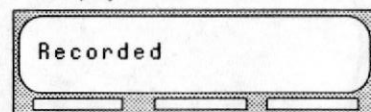
3. Enter a one to 12 digit number. (In this example, the number 23 is used). The display shows:



Note: If an Account Code is entered incorrectly, press **BKSP** and re-enter the number.

4. Press **OK**

The display shows:



Note: When you are using an M7208 or an M7100 telephone, press **#** for **OK** and ***** for **BKSP**.

An Account Code can be entered at any time during a call. However, you cannot enter the account code when a call is on hold or when an Administration session is in progress.

Programming an Account Feature Code Memory Button

You can program a memory button on your Norstar telephone to activate the SMDR Account Feature Code. For more information about memory buttons, refer to your **Norstar Telephone User Card**.

To program a memory button:

1. Press **Feature** ***** **3**
2. Press a programmable Norstar button.
3. Press **Feature**
4. Enter the three digit SMDR Account Feature Code.
5. Using the paper labels supplied with the Norstar telephone, label the button Account Feature Code.

Programming an Account Code Autodial Button

Frequently dialed Account Codes can be programmed on M7310 dual memory buttons. These are called Account Code buttons.

To program an Account Code button:

1. Press **Feature** ***** **1**
2. Press a dual memory button.
3. Using the dial pad enter the Account Code.
4. Press **OK**

Norstar Report Format

4

Reading Norstar Reports

This section explains how to interpret the records generated by SMDR. The examples in Figures 4.1 through 4.4 show output records for incoming, target line, outgoing and line to line calls.

```
----- 11/13/91 11:39:43 LINE = 0003 STN = 7425
00:00:00 INCOMING CALL RINGING 0:32
00:00:32 HOLD
00:00:33 UNHOLD
00:01:32 CALL RELEASED
```

Figure 4.1: Incoming Call

```
----- 11/13/91 13:22:17 LINE = 0083 STN = 7468
00:00:00 INCOMING CALL RINGING 0:15
LINE 0015
00:11:11 CALL RELEASED
```

Figure 4.2: Target Line Call

```
----- 11/13/91 16:44:18 LINE = 0008 STN = 7133
00:00:00 OUTGOING CALL
RESTRICTION PASSWORD 00
DIGITS DIALED 92864598
00:00:32 CALL RELEASED
```

Figure 4.3: Outgoing Call

```
----- 11/13/91 18:45:00 LINE = 0010 LINE = 0022
00:00:00 OUTGOING CALL
DIGITS DIALED 2735670
00:00:22 CALL RELEASED
```

Figure 4.4: Line to Line Call

Start Line

The start line contains:

- start date (month/day/year)
- time in 24 hour format (hour:minute:second)
- LINE = "XXXX", where "XXXX" is the line number
- STN = "YYYY", where "YYYY" is the station number

Note: The station number is a maximum of seven digits.

Event Line

The event line describes the type of call as shown in Figure 4.5. Each following line describes events modifying the state of the call.

Each event line has two parts:

- event time (elapsed time since the start of the call in (hour/minute/second))
- event type (one of 15 event types describing the call)

00:00:00 INCOMING CALL RINGING 0:32

Figure 4.5: Incoming Call

Event Time

The event time field is left blank on the line where the digits dialed are indicated as shown in Figure 4.6 below.

DIGITS DIALED 92864598 (up to 32 digits)

Figure 4.6: Digits Dialed

When "Link" or "Timed Release" digits are dialed, the Digits Dialed event line includes the event time.

Event Type

Sixteen event types can appear in a call paragraph event line.

ACCOUNT CODE - Indicates an Account Code was entered. The event data field contains the Account Code digits.

CALL RELEASED - The last event in a call paragraph, indicating the call was released.

CONFERENCE - Occurs when a call is conferenced with another party. The other call can be on another line or set. The end of a conference call is shown by a transferred or conference end action.

CONFERENCE END - Indicates a conference call was ended.

DIGITS DIALED - Indicates the digits and the Event Codes dialed during the call. Provided that link or timed release are not dialed, a single record will be generated. A maximum of 32 digits can be recorded per call. These Event Codes are shown in Figure 4.7. The digits dialed are provided in the data field.

Event Code	Event
L	Link (Feature 71)
P	Pause (Feature 78)
R	Timed Release (Feature 72)

Figure 4.7: Letter Codes

FROM TRANSFER - The first action in a call paragraph indicating a call was transferred to the station.

HOLD - Occurs when a call is placed on hold. The event data field is left blank.

INCOMING CALL - Indicates the time the incoming call was received, and the length of time before the call was answered.

INVALID PASSWORD - Indicates an incorrect restriction override password has been entered from a station or from a line. (Not available on systems with DR1 functionality)

LINE - Indicates the incoming physical line for a call to a target line. (Available on systems with DR4 functionality)

NO ANSWER - Indicates an incoming call was not answered. It also indicates the ringing time.

OUTGOING CALL - Indicates there was an outgoing call.

RESTRICTION PASSWORD - Indicates the password override ID and not the password itself. (Not available on systems with DR1 functionality)

SMDR RESTART - Prints a record if the KSU has reset, if SMDR cold starts, or if the output format is changed to Norstar.

TRANSFERRED - Indicates a call was transferred. It appears as the last event in a call paragraph.

UNHOLD - Indicates a call was taken off hold.

Troubleshooting

5

Introduction

This section provides solutions to problems you might encounter while programming and maintaining the SMDR unit.

Problems are grouped into two categories: Printer Problems and Error Messages.

Printer Problems

Problem: Records are not printing.

Solution: Ensure the printer:

- is connected to SMDR
- is on-line
- is properly loaded with paper

Ensuring Call Records are Printed

There is no message to warn users when the printer is off-line, or out of paper. If the printer is off-line from SMDR, the message `Printer problem` is displayed for three seconds when you access SMDR Administration.

If there is nothing wrong with the printer set up, then ensure SMDR is configured to the same speed as your printer. Refer to Section 3, Administering SMDR for more information.

Problem: Only certain calls are being printed.

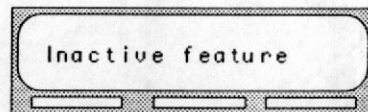
Solution: When a record is not printed, follow the steps below:

- The Call Reporting option might be screening out calls that you want recorded. For example, if the Call Report is set for outgoing calls, then only outgoing calls are printed. Refer to Section 3, Administering SMDR.
- A user must press OK or  after entering an Account Code for the record to be printed. Refer to Section 3, Administering SMDR for user training information.
- SMDR might have been restarted. It takes up to 60 seconds after the system is restarted before any calls are recorded. Calls made during this time are not recorded. SMDR will start printing records after this 60 second period.

Error Messages

SMDR shows error messages on the telephone display, and on printed records.

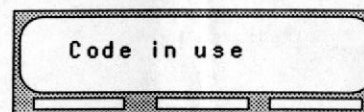
Message:



This message appears if an unassigned Feature Code is entered.

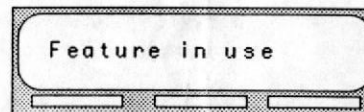
Access SMDR Administration to determine the correct Feature Code. Refer to Section 3, Administering SMDR.

Message:



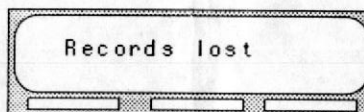
This message appears during SMDR Administration. The Account Code Feature number entered already exists within the Norstar system.

Message:



This message appears when two users try to access SMDR Administration simultaneously.

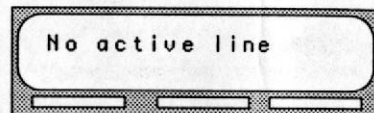
Message:



SMDR has internal event buffers that store all information relating to call records. If the system becomes overloaded because of excessively high call activity, records can be lost.

You might require a higher speed printer, or an external print buffer device. Ensure the SMDR and the printer's baud rate is set to 4800.

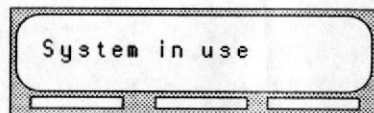
Message:



This message is caused by inputting the Account Feature Code when an external line has not been selected, or is on hold.

Use an Account Code on active outside lines.

Message:



This message means the Feature Code for another application is being administered at this time.

Glossary

Account Code

A numeric code up to 12 digits used by SMDR to associate telephone calls with clients, departments, projects, or individuals in a company.

Account Feature Code

A three digit number that enables users to enter an SMDR account code from a Norstar telephone.

Baud

A variable unit of data transmission speed equal to one bit per second.

Call Accounting

An optional software program that can be used to analyze the data collected by SMDR and to organize it according to a company's needs.

Call Record

A type of record created by SMDR. This record includes information about a call's duration and number dialed.

Call Report

A report that uses call record information collected by SMDR to itemize telephone activity.

Default

A value that SMDR assumes unless another one is specified.

Event

An action the user performs, such as: ORIGINATE, HOLD, TRANSFER, RELEASE or CONFERENCE.

KSU

Key Service Unit. The central hardware component in the Norstar system. The KSU has its own processor and memory, and provides a physical point for connection of various types of data terminals, telephones and expansion modules.

Norstar Record Format

An English language syntax organization of call records.

Physical Line

The physical connection between the Norstar system and the outside world.

Prompt

A message appearing on the Norstar display instructing the user to perform a specific task.

Record

A unit of information consisting of several related data items pertaining to a call.

SL-1 Record Format

The organization of information that SMDR data must be translated into before the data it contains can be read by an SL-1 call accounting program.

SMDR

Station Message Detail Recording is a unit that is connected to your Norstar Key Service Unit to record call activity.

System Coordinator

The person responsible for installing, administering and maintaining SMDR for a particular company.

Target Line

A virtual communication path between a physical line and a Norstar telephone.

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